

# TEMPERATURE TRANSMITTERS

## SEM203 P

- PUSH BUTTON SENSOR MATCHING
- UNIQUE PUSH BUTTON CONFIGURATION WITHOUT PC
- CONFIGURABLE IN SECONDS
- HIGH STABILITY
- PROGRAMMABLE BURNOUT
- LOW COST



## INTRODUCTION

The SEM203/P is a low cost “smart” in head transmitter that accepts PT100 temperature sensors and converts sensor output over a configured range to a standard industrial (4 to 20) mA transmission signal.

A simple push button operation allows the user to not only select the desire range and burnout direction but also perform user trim at both (4 and 20) mA points.

The SEM203 in head transmitter incorporates the latest digital technology to ensure accurate drift free performance. If required the desired range can be specified at the time of order, removing the need for user configuration. If the range is not specified then the transmitter will be shipped with the default range of (0 to 100) °C set.

## PUSH BUTTON CONFIGURATION

A single push button and LED indicator allows the user to navigate a three menus, allowing configuration of the transmitter. The menus are as follow:-

Menu 1	Configure range.
Menu 2	Configure burnout direction.
Menu 3	Trim output current @ either 4 mA or 20 mA.

## SPECIFICATIONS @ 20 °C

### INPUT

Sensor Type	PT100 100R @ 0 °C 2 or 3 Wire
Sensor Range	(-200 to +850) °C (18 to 390) Ω
Sensor Connection	Screw terminal
Minimum span (*1)	25 °C
Linearisation	BS EN 60751(IEC 751) standard / JISC 1604
Measurement Accuracy (*2)	0.1 °C ± 0.05% of Reading
Thermal Drift	0.0025 % / °C
Excitation current	<200 uA
Lead Resistance effect	0.002 °C / Ohm
Maximum lead Resistance	20 Ohms per leg

### OUTPUT

Output Type	2 wire (4 to 20) mA current loop
Output range	(4.0 to 20.0) mA
Output Connection	Screw Terminal
Maximum output	21.5mA (in high burnout condition)
Minimum output	<3.9 mA (in low burnout condition)
Accuracy	(mA output /2000) or 5 uA (Which ever is the greater)
Loop Voltage effect	0.2 uA / V
Thermal drift	1 uA / °C
Maximum output load	[(Vsupply-10)/21]K Ohms (Example: 700 Ohms @ 24V)

### GENERAL SPECIFICATION

Update time	500 ms
Response Time	1 second
Start up time	4 seconds (1 out < 4 mA during start up)
Warm-up time	1 minutes to full accuracy
Power Supply	(10 to 30) Volts dc

# TEMPERATURE TRANSMITTERS

## ENVIRONMENTAL

Ambient operating range (-40 to +85) °C  
 Ambient storage temperature (-50 to +90) °C  
 Ambient humidity range (10 to 90) % RH non condensing

## PHYSICAL

Dimensions 43 mm diameter; 21 mm height  
 Weight 31 g (encapsulated)

## APPROVALS

**EMC - BS EN 61326 :1998** - Electrical equipment for measurement control and laboratory use.

**ANNEX A** Immunity test requirements for equipment intended for use in industrial locations

**ANNEX F** Test configurations, operational conditions and performance criteria for transducers with integrated or remote signal conditioning.

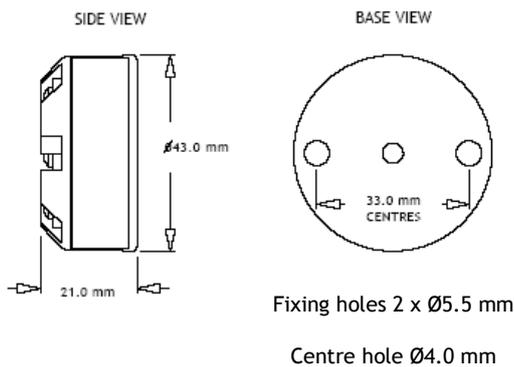
IEC 61000-4-2 Electrostatic discharge  
 IEC 61000-4-3 EM Field  
 IEC 61000-4-4 Transient Burst (output)  
 IEC 61000-4-5 Surge (output)

Note - Sensor input wires to be less than 3 metres to comply.

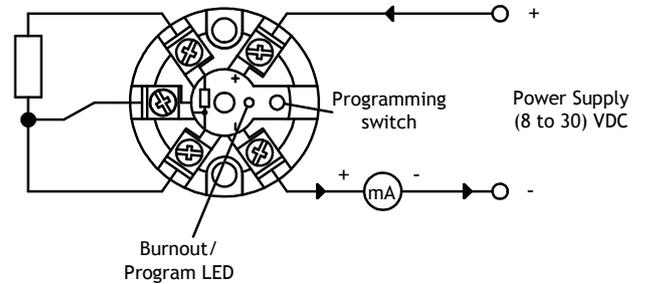
Note \*1 Any span may be selected, full accuracy is only guaranteed for spans greater than the minimum recommended

Note \*2 Basic measurement accuracy includes the effects of calibration, linearisation and repeatability

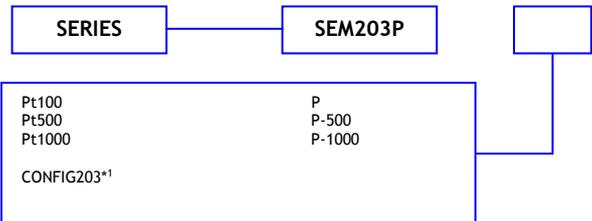
## MECHANICAL



## WIRING CONNECTIONS



## ORDER CODE



\*NOTES:  
 1) For special configuration, please contact the sales office.

Upscale burnout is standard, for downscale please contact the sales office